

# VCE Systems Engineering: School-Assessed Task (SAT)

Using the criteria to make  
on-balance judgements to  
rank student cohort: Criteria  
4–8

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# School-assessed Task

The Systems Engineering **mechanical and electrotechnological integrated and controlled system** created for the School-assessed Task (SAT) is based on Unit 3, Outcome 1 and Unit 4, Outcome 1.

# Criteria 4–8

- These criteria are about planning how the students will go about
  - designing
  - prototyping
  - planning
  - scheduling
  - sourcing equipment
  - sourcing tools
  - sourcing components
  - and so on.

# Criteria versus indicators

- The criteria are mandated; the indicators are guidance.
- The indicators are used to form a judgement in ways that are appropriate to the particular students in the particular circumstances, in the particular year that you are teaching the study in.

# Systems engineering process

- You need to make sure that you tie all of the criteria to the systems engineering process.
- The systems engineering process is one that is iterative.
- The systems engineering process supports agile development, **not** a 'one-shot-type' project.

- It is important, however, that you use the **same indicators** for each of the students in your particular class, so that you can be **fair** with respect to how you are going to arrive at a judgement.

Note that the **indicators are quite broad**, and that is because in any ordinary year, your interpretation of those indicators will change, depending on your cohort and their unique circumstances.



# Carrying out the plan, evaluating

Essentially, criteria 4–8 are concerned with the student carrying out the intention, adapting when the plan does not go to plan, making decisions, replanning and evaluating their performance with respect to the systems engineering process.

**This works most effectively when criteria 1–3 is completed with regard to intention development.**

Outcomes	Assessment tasks
<p><b>Unit 3</b> <b>Outcome 1</b></p> <p>Investigate, analyse and apply concepts and principles, and use components to design, plan and commence production of an integrated and controlled mechanical and electrotechnological system using the systems engineering process.</p>	<p>A record of investigation, design, planning and production. AND Preliminary production work to create a mechanical and electrotechnological integrated and controlled system.</p>
<p><b>Unit 4</b> <b>Outcome 1</b></p> <p>Finalise production, test and diagnose a mechanical and electrotechnological integrated and controlled system using the systems engineering process, and manage, document and evaluate the system and processes, as well as their use of it.</p>	<p>Completion of production work accompanied by a record of progress and modifications (images and text material). AND A record of diagnostic testing and performance data. AND A report that evaluates and suggests improvements to the system with reference to the factors that influenced its creation and to the student's use of the systems engineering process.</p>

## VCE Systems Engineering: School-assessed Task Assessment Sheet

Assessment criteria	Levels of performance									
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)			
4. Use of tools, equipment and machines to make the system	<ul style="list-style-type: none"> <li>implements work plan</li> <li>complies with OH&amp;S requirements</li> </ul>	Insufficient evidence	Follows the steps and timelines in the work plan with support using production processes, and tools, equipment, components and materials compliant with OH&S requirements to produce preferred option.	Implements a work plan with support using production processes, and tools, equipment, components and materials compliant with OH&S requirements to produce preferred option.	Implements a work plan with support using production processes, and tools, equipment, components and materials with technical skills, compliant with OH&S requirements to produce preferred option.	Implements a work plan independently using production processes, and tools, equipment, components and materials with technical skills, compliant with OH&S requirements to produce preferred option.	Implements a work plan independently using production processes, and tools, equipment, components and materials with precision and technical skills, compliant with OH&S requirements to produce preferred option.			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

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5. Realisation of an integrated controlled system	<ul style="list-style-type: none"> <li>produces integrated, controlled system</li> </ul>	Insufficient evidence	With support, produces an integrated, controlled system that is linked to the design brief	With support, produces an integrated, controlled system that addresses the context, considerations and/or constraints of the design brief	With support, produces an operational, integrated, controlled system that addresses the context, considerations and constraints of the design brief as described in the work plan with documented modifications	Independently produces an operational, integrated, controlled system that addresses the context, considerations and constraints of the design brief as described in the work plan and/or with documented modifications	Independently produces an operational, integrated, controlled system that addresses the context, considerations and constraints of the design brief and as described in the work plan with documented modifications.			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

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	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)			
6. Use of diagnostic test procedures and interpreting test data	<ul style="list-style-type: none"> <li>• identifies diagnostic tests</li> <li>• provides reason for diagnostic tests</li> <li>• explains how to set up diagnostic tests</li> <li>• conducts tests</li> <li>• generates and uses test data</li> </ul>	Insufficient evidence	Uses diagnostic tests to generate test data.	Uses diagnostic tests to generate and describe test data.	Identifies reasons for diagnostic tests and conducts these tests to generate and describe test data.	Identifies reasons for diagnostic tests and conducts these tests to generate and explain test data.	Identifies reasons for diagnostic tests and conducts these tests to generate, analyse and interpret test data.			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

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7. Project management to realise the preferred option	<ul style="list-style-type: none"> <li>manages production of system</li> <li>documents decision-making, modifications and justifications</li> </ul>	Insufficient evidence	With support, demonstrates skills in time management and/or organisation to produce the preferred option, identifies evidence of progress and risk assessments for production work and diagnostic testing and identifies modifications if required	With support, demonstrates skills in time management and/or organisation to produce the preferred option, outlines evidence of progress and risk assessments for production work and diagnostic testing, and identifies decision-making and modifications if required	With support demonstrates skills in time management and organisation to produce the preferred option, outlines evidence of progress, risk assessments for production work and diagnostic testing and describes decision-making and modifications if required	Independently demonstrates skills in time management and organisation to produce the preferred option, describes evidence of progress and risk assessments for production work and diagnostic testing and explains decision-making and modifications if required	Independently demonstrates skills in time management and organisation to produce the preferred option independently, describes evidence of progress and risk assessments for production work and diagnostic testing and justifies decision-making and modifications if required			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

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8. Evaluating the use of the systems engineering process, including finished, integrated controlled system	<ul style="list-style-type: none"> <li>evaluates design</li> <li>evaluates production (materials, tools, processes)</li> <li>tests and evaluates system</li> </ul>	Insufficient evidence	Uses the systems engineering process including diagnostic testing and pre-determined evaluation criteria to identify performance of the system and/or recommendations to the design, production and performance of the system	Uses the systems engineering process including diagnostic testing and the pre-determined evaluation criteria to describe the performance of the system and identify recommendations to the design and production of the system	Uses the systems engineering process including diagnostic testing and the pre-determined evaluation criteria to explain the performance of the system and identify recommendations to the design and production of the system	Uses the systems engineering process including diagnostic testing and the pre-determined criteria to evaluate the performance of the system and describe recommendations to the design and production of the system	Uses the systems engineering process including diagnostic testing and the pre-determined criteria to evaluate the performance of the system and explain recommendations to the design and production of the system			
			0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>

# SAT Q&A webinar

- A Q&A webinar related to the SAT will be held in Term 1. Refer to the VCAA February Bulletin for details of the date and how to register.
- Any questions, information or clarification you would like to be covered during this webinar, please email to Dr Leanne Compton [leanne.compton@education.vic.gov.au](mailto:leanne.compton@education.vic.gov.au)